

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 018

CIRC ACCESSION NO--AP0125372
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ANALYSIS OF THE THERMAL CONDITIONS IN THE MARTIAN SOIL AT THE SOUTH POLE OF THE PLANET AND OF THE ANNUAL VARIATIONS IN THE THICKNESS OF THE SOUTHERN POLAR CAP AS A FUNCTION OF THE CHARACTERISTICS OF THE BASE AND THE CARBON DIOXIDE CONDENSATION AND SUBLIMATION PROCESSES. IT IS SHOWN THAT FOR A GIVEN PARTIAL CARBON DIOXIDE PRESSURE IN THE MARTIAN ATMOSPHERE, THE DURATION OF THE POLAR CAP INCREASES WITH INCREASING THERMAL INERTIA OF THE SOIL.

FACILITY: GOR'KOVSKII GOSUDARSTVENNYI UNIVERSITET, GORKI, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--EFFECT OF THE R SUB3 SI GROUP ON THE CHEMICAL STRUCTURE OF SILICON
SUBSTITUTED ALKOXYACETYLENES AND KETENES -U-
AUTHOR--(04)--LAZAREV, A.N., TENISHEVA, T.F., SHCHUKOVSKAYA, L.L., PALCHIK,
R.I.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1106-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANOSILICON COMPOUND, ACETYLENE, KETONE, CARBONYL RADICAL,
MOLECULAR ORBITAL, DIPOLE MOMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/2025 STEP NO--UR/0020/70/190/005/1106/1108
CIRC ACCESSION NO--AT0112980
UNCLASSIFIED

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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0112980

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING VALUES WERE CALCD.

FROM SPECTRAL DATA FOR RR PRIME1 C:CO RESP. FOR INDICATED RR PRIME1 (CARBONYL BOND FORCE CONST. (X 10 PRIME6 CM PRIME NEGATIVE2), C:C BOND FORCE CONST., SUMMARY POLAR TAFT CONST. GIVEN): H, H, 26.95, 14.3, 0.98; ME, ME, 26.47, 14.65, 0; ME SUB3 SI, H, 25.22, 14.8, MINUS 0.23; AND ME SUB3 SI, ME SUB3 SI 23.24, 16.27, MINUS 1.44. THE VALUES OF FORCE CONSTS. WERE SIMILARLY CALCD. FROM SPECTRA OF HC TRIPLE BOND COME AND ME SUB3 SIC TRIPLE BOND COME, RESP., FOR INDICATED BONDS: R-C 10.88, 5.8, C TRIPLE BOND C 26.3, 25.0; TRIPLE BOND C-O 13.6, 13.6; AND OC(H SUB3) 8.0, 7.2. THE APPARENT DIFFERENCE IN THE EFFECT OF THE ME SUB3 SI GROUP IN ALLENES AND ACETYLENES INDICATES A GREATER ENERGETIC ADVANTAGE IN THE CASE OF ACETYLENES OF THE ELECTRON ACCEPTANCE AT THE D ORBITALS OF SI TO YIELD A FORMAL STRUCTURE SUCH AS SI PRIME NEGATIVE:C:C:O POSITIVE IN COMPARISON WITH A SIMILAR PROCESS IN THE ALLENES. THE INDICATIONS AGREE WITH EARLIER DIPOLE MOMENT DATA. FACILITY: INST. KHIM. SILIKAT. IM. GREBENSHCHIKOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.791.011:669.28

GUREVICH, S. M., NERODENKO, M.M., ALEKSEYENKO, G. N., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences, Ukrainian SSR, BIRYUKOVA, T. A., and SHCHUKYN, A. A., Moscow

"Weldability of Some Molybdenum Alloys"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 27-29

Abstract: A study was made of the weldability of molybdenum alloyed with carbon and group VIII elements (iron, cobalt, nickel, and irridium). The test procedure is described, and the mechanical properties of welded joints of the molybdenum alloys are tabulated. It was found that iron, cobalt, nickel, and irridium refine the structure of the weld. Group VIII elements increase the difference between the ultimate strength and yield point of joints made of alloys of molybdenum with carbon. In the entire investigated range of concentrations of these elements, the ratio $\sigma_{0.2}/\sigma_b$ during bending is minimal for joints of molybdenum-

carbon-nickel and molybdenum-carbon-irridium alloys. With an increase in iron content the ultimate strength of the joints of

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GUREVICH, S. M., et al., Avtomaticheskaya Svarka, No 3, Mar 71,
pp 27-29

molybdenum-carbon-iron alloys increases.

The mean hardness of welded joints of molybdenum alloys with $\delta = 1$ mm at various distances from the weld is plotted. These data show that an increase in hardness along the axis of the weld and a decrease at the fusion line are especially characteristic for alloys of the molybdenum-carbon system. Group VIII alloying of molybdenum with carbon leads to a smoother variation of hardness with respect to joint cross section; irridium and nickel have the most favorable effects.

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Acc. No. **NP0054338** Abstracting Service:
CHEMICAL ABST. 6/70

Ref. Code:

4R 0099

116783y Superadditivity of developing and activating action on black and white films of 3-aminopyrazoline derivatives. Abritalin, V. L.; Zhurin, R. B.; Trukanaite, A.; Ivina, V. N.; Shchul'gina, O. E. (Vses. Nauch.-Issled. Inst. Khim. Prom., Moscow, USSR). *Zh. Nauch. Prikl. Fotogr. Kinematogr.* 1970, 15(1), 26-30 (Russ). The most common black-and-white developers and high-sensitivity isopanchromatic film were used. 1-(4-Aminophenyl)-3-aminopyrazoline (I) in several black-and-white developers revealed no superadditive action with Metol, Amidol, Phenidone, methylphenidone and 1-(*m*-tolyl)-3-pyrazolidinone, but with hydroquinone, Glycin, Adurol, and pyrogallol a marked superadditivity effect was obsd. Introduction of electroneg. sulfo- and aceto-groups into the mol. of 3-aminopyrazoline resulted in a sharp decrease in superadditivity. I exerted higher activating effect on hydroquinones. Electropos. groups introduced into the Ph group of 3-aminopyrazoline promoted the activating action. F. Vesely

REEL/FRA
19831482

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DUSHAUSKENE-DUZH, N.-R. F., MARCHYULENENE, E. -D. P., NYANISHKENE, V. B.,
SHCHULIYENE, R. I., and POLIKARPOV, G. G.

"The Uptake of Radionuclides by Some Fresh-Water Hydrobionts"

Vil'nyus, Tr. AN LitSSR (Proceedings of the Academy of Sciences Lithuanian SSR), B, No 3 (59), 1972, pp 201-212 (from Referativnyy Zhurnal--Biologicheskaya Khimiya, No 5, 1973, Abstract No 5F1532)

Translation: As a result of investigations conducted under natural conditions in 1967-1968 (10 fresh water ponds in the Lithuanian SSR), it was established that the accumulation coefficients (AC) for ^{90}Sr and ^{210}Pb did not differ in fishes and molluscs, while in the case of plants the AC for ^{210}Pb was an order of magnitude less than that for ^{90}Sr . A definite correlation was found to prevail between the concentrations of ^{90}Sr and ^{210}Pb . The AC for ^{90}Sr and ^{210}Pb were found to depend on the ash content of the hydrobionts. The highest AC for ^{90}Sr , ^{137}Cs , ^{144}Ce , and ^{106}Ru were observed in the case of the phytoplankton and in the silt. Of the various radionuclides, ^{144}Ce had the highest AC in the hydrobionts, and ^{137}Cs in the silt. The AC of ^{90}Sr was relatively low in the hydrobionts and silt. The

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DUSHAUSKENE-DUZH, N.-R.F., et al., Tr. AN LitSSR, B, No 3 (59), 1972, pp 201-212

intense accumulation of ^{137}Cs , ^{144}Ce , and ^{106}Ru in the silt from the aquatic environment serves to decrease the uptake of these radionuclides by chironomid larva. The chironomid larva assimilate radionuclides in the following quantities from a radioactive meal: ^{90}Sr -- 10%, ^{137}Cs -- 9%, ^{144}Ce -- 11%, and ^{106}Ru -- 6%. Year old carps assimilate 10% of the total quantity of ^{144}Ce in a radioactive meal (chironomids), which pass through their gastrointestinal tract. The uptake of ^{90}Sr , ^{137}Cs , ^{144}Ce , and ^{106}Ru by zebra mussels and chironomid larvae, of ^{90}Sr into the organisms of pond snails, and of ^{144}Ce by the year old carps occurs primarily from the aqueous environment, and in smaller quantities from the food. It was shown that fishes belonging to different trophic levels (carps and predatory fishes) accumulate ^{90}Sr to the same extent. Analogous findings held for ^{210}Pb . The AC for each of these radionuclides does not depend on the type of nutrition of the fish.

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USSR

UDC: 661.143:546.48'221

SHCHUL'MAN, V. M., POPOV, V. P., REDCHENKO, V. T., VARAND, V. L.,
ZEGZHDA, T. V.

"A Thiourea Method of Synthesizing Cadmium Sulfide for Phosphors"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Col-
lected Scientific Works of the All-Union Scientific Research
Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5,
pp144-150 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L175)

Translation: A hydrogen sulfide free method of synthesizing CdS is developed
which is based on deposition of CdS from an aqueous solution of CdSO_4 by
thiourea in the presence of NH_3 . The resultant CdS contains 98% or more of the
basic substance, and $10^{-4}\%$ or less of heavy metal impurities (Fe, Cu, Ni and
Co combined). The cadmium sulfide synthesized by the thiourea method is suitable
for making luminescent compositions of various grades. The diagram for synthe-
sis of cadmium sulfide is given. Bibliography of 13 titles. Résumé.

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AA0044780- . Shchupak, I. A.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

241106 A CARD PROCESSING MACHINE, designed for the rapid feed of cards from a stack to 'read' brushes and subsequent assembly into the stack in the same order, is proposed on a circular plan, shown in the diagram. 1 is the stack held in a magazine, dispensed by a feed-out device 3 on to a vacuum drum 2, where the information is picked off by brushes 11. A rejecting device 4 passes the card on to the inner surface of the large circulating drum 5 driven by one of the rollers 6,7, or 8, whence it is returned to the top of the magazine by the scoop 9, dipping into a groove in the drum face 5. In addition to rapid processing of the contents of the stack, the device, by interrupting the ejector 4, can be made to repeat the passage of any card over drum 2, for repetitive readout at 11.

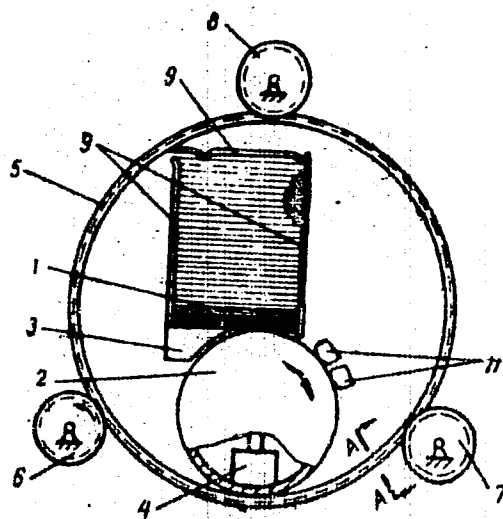
30.1.67 as 1132045/26-24 Add to 227692. T.V.YAKUTIS et alia. CALCULATING MACHINES DES.BUR. (12.8.69) Bul 13/1.4.69. Class 42m³, 21a¹. Int.Cl.G 06F, H 0 k.

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AA0044780

AUTHORS: Yakutis, T. V.; Mishkinis, A. P.; Shchupak, I. A.

Spetsial'noye Konstruktorskoye Byuro Vychislitel'nykh Mashin

19771589

USSR

UDC 621.396.967:551.501.81

TSKHAKAYA, K. G., SHCHUPYATSKIY, A. B., MORGUNOV, S. P., and
MINERVIN, V. Ye.

"Measurements of Signal Depolarization by Meteorological Forms in
Bistatic Reception"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
(Tenth All-Union Conference on the Propagation of Radio Waves;
Report Theses--collection of works) "Nauka," 1972, pp 360-365 (from
RZh--Radiotekhnika, No 10, 1972, Abstract No 10G31)

Translation: The application of bistatic reception to radar inves-
tigation of meteorological forms is considered. A method is de-
scribed for experimentally investigating the signal parameters at
various dispersion angles. The measurements were conducted with
two radio relay stations separated by 14 km. The technique of
synchronizing both stations, of the frequency agreement of the
separated transmitter and receiver, and of the coincidence of the
space investigated by both stations, is given. Three illustra-
tions, bibliography of one. N. S.

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USSR

UDC 616.001.4-08

SHCHUR, V. V., MAKEYEVA, N. S., ARENBERG, A. A., GOL'TS, M. V., and NIKANOROV, YU. A., Fryazino Central Municipal Hospital

"Use of a Laser to Treat Wounds"

Leningrad, Vestnik Khirurgii imeni I. I. Grekova, No 6, 1972, pp 85-89

Abstract: A helium-neon laser (output power 10 milliwatts, wavelength 6328 Å) was used to treat 25 patients with persistent non-healing wounds and trophic ulcers of the lower extremities that had previously shown no response to conservative treatment, physical therapy, or surgery. The course of treatment included 12 to 25 daily sessions with the initial exposure of 20 to 30 seconds gradually increased to several minutes. The results showed complete healing of the wounds with the formation of a rather elastic connective-tissue scar and epithelization in 19 and marked contraction of the wound area in 4. In the great majority of patients, active growth of granulations in the wound and start of epithelization at the margins were evident after 3 to 5 sessions. Neither the microflora of the wound nor the main hematological indexes (except a slight decrease in the WBC after 70 to 10 procedures and near normalization by the end of treatment) were significantly affected by the laser radiation. Follow-up of 16 patients for 3 to 7 months revealed no recurrences of the wounds.

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USSR

UDC: 621.317.772(088.8)

PREOBRAZHENSKIY, Yu. N., SOROKA, V. B., SHCHURIK, A. B.

"A Device for Measuring Fluctuations in the Phase of a Radio Signal"

USSR Author's Certificate No 263001, filed 1 Oct 68, published 8 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A321 P)

Translation: This Author's Certificate introduces a device for measuring fluctuations in the phase of a radio signal. The unit contains a radio receiver, a pulse shaping module, and a module for measuring phase difference. As a distinguishing feature of the patent, the time delay range is extended by adding a series circuit made up of a quartz-crystal oscillator, a trigger and reset module, and also a binary counter with a division coefficient determined by the amount of delay. The counter output is connected to the input of the module for phase difference measurement, and the controlling input of the trigger and reset module is connected to the output of the shaper module. E. L.

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Acc. Nr: **AF0036182**

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,
pp 94-97

ON THE RELATIONSHIP BETWEEN THE INTENSITY OF
SMALL ANGLE X-RAYS SCATTERING AND THE MECHANISM OF
MOISTURE EVAPORATION FROM HARDENING GYPSUM

M. A. Sorochkin, A. B. Shchegolev, G. M. Plavnik

Summary

During the investigation of hardening of β -semiaqueous gypsum by means of small angle x-rays scattering (SAS) a change in the intensity of SAS with moisture evaporation from the hardening paste was discovered. The nature of the change in SAS intensity with time has been studied for various water-gypsum ratios at the angles 3, 4, 5, 6 and 20, 25, 30 minutes. The results of the SAS intensity measurements are correlated with the ultrasound velocity. On the basis of experimental data a mechanism is suggested of dehydration of gypsum articles by surface drying, which ultimately increases the strength of the material.

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UDC 541.13

KONONENKO, L. YE., SHCHUROV, A. N., KOLOTYRKIN, V. M., TUNITSKIY, N. N.

"Electrical Conductivity of Ion-Exchange Membranes in Dry Form"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 242-243

Abstract: In order to determine the possible contribution of the electron conductivity to the total conductivity of polyelectrolyte membranes, a study was made of the F-23 membrane to which 11% sodium styrenesulfonate was grafted. The membrane had an exchange capacity of 0.5 milligram-equivalents/gram. The film was converted to various forms (H^+ , Ag^+ , Cu^{2+} , Fe^{3+}), and aluminum electrodes were deposited on it in a vacuum. After prolonged drying in a vacuum and simultaneous heating at $100^\circ C$, the electrical conductivities were measured for different temperatures (from 22 to $100^\circ C$) and field intensities (from 10^2 to 10^5 volts/cm). The volt-ampere characteristics were measured by a previously described procedure [L. S. Tuzov, et al., Vysokomolekul. soyedineniya, A, No 9, 2414, 1967]. Examples of the volt-ampere characteristics are presented for membranes in the H^+ -form and Ag^+ -form at various temperatures with a membrane thickness of 60 μ . The data show that the ion-exchange materials in the dry state can be of interest as dielectrics in which without varying the matrix by a controlled procedure, the composition of the included ions varies. Introduction of ~0.5 mg-equivalents/g of metal atoms or ions into the polymer dielectric 1/2

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KONONENKO, L. YE., et al., Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 242-243

has no strong effect on the conductivity of the dielectric. In dry form, the tested membranes have electron conductivity. The higher the ionization potential of the atom, the larger the activation energy of electrical conductance of the film in the corresponding form.

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Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

238380 HEAT TREATMENT OF CONCRETE AND REINFORCED CONCRETE ARTICLES is carried out by means of a.c. of main frequency during the vibrational formation of the articles. The temperature is rapidly increased to 90-100°C (instead of the conventional rate of 20°C/hr.), whereby the duration of the articles, the moulds are removed without delay, and the articles are further heated at the same temperature until the desired strength is reached. As electrodes, insulated parts of the forming machines or reinforcement elements are used. Compared with the known methods, this process is shortened by 2-4 hrs. The density of the articles is increased, because the vibrational formation is carried out at elevated temperatures. There is no temperature gradients, so that internal stresses do not develop. The removal of the mould elements is facilitated because of the formation of a vapour layer at the contact surfaces. 26.10.67, as 1194251/29-33. B.A.KRYLOV et alia. Institute of Concrete and Reinforced Concrete. (10.7.69.) Bul.9/20.2.69. Class 80a. Int.Cl. B28c.

19740001

AA0038801

AUTHORS: Krylov, B. A.; Li, A. I.; Malinina, L. A.;
Mironov, S. A.; Rudenko, I. F.; Folomeev, A. A.;
and Shchurov, Yu. I.

Nauchno - Issledovatel'skiy Institut Betona i Zhelezobetona

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19740002

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UNCLASSIFIED
TITLE--DEPENDENCE OF MAGNETOCRYSTAL ANISOTROPY ON FIELD STRENGTH IN
HEXAGONAL BARIUM FERRITE -U-
AUTHOR--(03)-SHCHURGVA, A.D., PEREKALINA, T.M., FONTON, S.S.
PROCESSING DATE--20NOV70
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1571-1573
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--MAGNETIC ANISOTROPY, SINGLE CRYSTAL, MAGNETIZATION, BARIUM
FERRITE
CENTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0025
CIRC ACCESSION NO--AP0127675
STEP NO--UR/0056/70/058/005/1571/1573
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0127675

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. A STRONG DEPENDENCE OF THE
MAGNETIC ANISOTROPY CONSTANT ON MAGNETIC FIELD STRENGTH H IS OBSERVED IN
BASC SUB1.8 FE SUB10.2 G SUB19 SINGLE CRYSTALS. IN FIELDS H SMALLER
THAN H_{SUBC} THE CRYSTALS HAVE AN AXIS OF EASY MAGNETIZATION AND IN
FIELDS H GREATER THAN H_{SUBC} THEY POSSESS A PLANE OF EASY MAGNETIZATION.
THE RESULTS ARE EXPLAINED ON BASIS OF A MODEL OF TWO MAGNETIC
SUBLATTICES WITH WEAK EXCHANGE INTERACTION BETWEEN THEM.
FACILITY: INSTITUT KISTALLOGRAFI, AKADEMII NAUK SSSR.

UNCLASSIFIED

Acc. Nr: **AP0043590**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 821-824

MAGNETIC ANISOTROPY AND MAGNETIZATION PROCESSES
IN STRONTIUM-ZINC HEXAGONAL FERRITES

Perekalina, T. M.; Shchurova, A. D.;

Sannikov, D. G.; Fonton, S. S.

Qualitative changes in the torque curves with increase of magnetic field strength and the presence of two minima in the magnetic anisotropy energy, i. e. the existence of two easy magnetization directions, are experimentally observed in single crystals of the hexagonal ferrites $\text{Sr}_2\text{Zn}_2\text{Fe}_{12}\text{O}_{22}$ and $\text{Sr}_3\text{Zn}_2\text{Fe}_{24}\text{O}_{41}$. A model of two magnetic sublattices with weak exchange interaction between them is employed for explaining the experimental data.

REEL/FRAME
19762062

July
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USSR
ELECTRONICS
Amplifiers

USSR

SHCHUTSKOY, K. A., Member of the Scientific and Technical Society of Radio
Engineering, Electronics and Communications imeni A. S. Popov

UDC 621.375.4

"FET Resonance Amplifiers"

Moscow, Radiotekhnika, Vol 27, No 7, Jul 72, pp 56-60

Abstract: The parameters of the field-effect transistor in an amplifier are given, and equations are derived for the input and transfer admittance, the stage amplification factor, and the frequency and phase responses. It is found that the transconductance of the field-effect transistor is in phase in the working frequency range. The input admittance is due to the resistance of the source and of the part of the channel between the source and the sink, and is proportional to the square of the frequency. Internal negative feedback reduces the transconductance of the FET S_0 by a factor of $1 + S_0 R_s$, where R_s is the resistance of the source. When conditions of stability with respect to the amplification factor are satisfied in each stage, the frequency and phase responses of the input loop are only slightly distorted; the passband is reduced by 10%. The noise factor of a stage decreases with a reduction in the product of the thermal noise impedance by

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SHCHUTSKOY, K. A., Radiotekhnika, Vol 27, No 7, Jul 72, pp 56-60

the input admittance. The noise factor reaches a minimum at a certain input transformation ratio. It is advisable to use the FET in the first a-f amplification stage, or in the first i-f amplification stage of a receiver without a-f amplification with diode frequency converter.

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1/2 044 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--FLOW IN THE BASE REGION IN THE CASE OF SUPERSONIC STREAMLINE FLOW
AROUND BODIES -U-
AUTHOR-(02)-ISAYEV, S.P., SHCHVEIS, A.I. S
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, MEKHANIKA ZHIKOSTI I GAZA,
NO 1, JAN-FEB 70, PP 25-32
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERSONIC FLOW, STREAMLINE FLOW, CONIC BODY, TURBULENT
BOUNDARY LAYER, REYNOLDS NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0212

STEP NO--UR/0421/70/000/001/0025/0032

CIRC ACCESSION NO--AP0103884

UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0103884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH RESULTS OF RESEARCH ON THE STRUCTURE OF BLOW BEHIND CONICAL AND SECTORIAL BODIES, SUPERSONIC FLOW BEING COMPARED WITH SUBSONIC FLOW. MODELS OF POINTED AND BLUNT CONES, WITH VALUES θ OF THE HALF ANGLES OF TAPER EQUAL TO 10, 20 AND 30 DEGREES AT THE CONE APEX, WERE TESTED IN A WIND TUNNEL. THE DIAMETER OF THE BASE SECTION OF THE CONES WAS EQUAL TO 130 MM. THE MODELS OF THE SECTORIAL BODIES CONSISTED OF A CONJUNCTION OF AN INVERSE TRUNCATED CONE WITH AN 8 DEGREE ANGLE OF TAPER WITH LEADING PARTS IN THE FORM OF SPHERICAL SEGMENTS WITH THE RATIOS R EQUALS $H-R$ EQUAL TO 0.2, 0.5 AND 1.0. THE DIAMETER OF THE LARGE BASE OF THE CONE EQUALS 120 MM, THE LENGTH OF THE TRUNCATED CONE IS 120 MM. THE REYNOLDS NUMBERS, REFERRED TO 0.1 M AND DETERMINED ACCORDING TO THE PARAMETERS OF THE AIRSTREAM, VARIED BETWEEN 1.2 TIMES 10^6 TO 3.0 TIMES 10^6 . A TURBULENT BOUNDARY LAYER FORMED ON THE TRAILING EDGE OF THE TESTED BODIES.

UNCLASSIFIED

USSR

ISAYEV, S. P., ~~SHCHIVETS~~, A. I.

"Flow in the Base Region in the Case of Supersonic Streamline Flow Around Bodies"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 70, pp 25-32

Abstract: The article deals with results of research on the structure of flow behind conical and sectorial bodies, supersonic flow being compared with subsonic flow. Models of pointed and blunt cones, with values θ of the half-angles of taper equal to 10, 20 and 30 degrees at the cone apex, were tested in a wind tunnel. The diameter of the base section of the cones was equal to 130 mm. The models of the sectorial bodies constituted a conjunction of an inverse truncated cone with an 8-degree angle of taper with leading parts in the form of spherical segments with the ratios $t = h/r$ equal to 0.2, 0.5 and 1.0. The diameter of the large base of the cone equals 120 mm, the length of the truncated cone is 120 mm.

The Reynolds numbers, referred to 0.1 M and determined according to the parameters of the airstream, varied between 1.2×10^6 to 3.0×10^6 . A turbulent boundary layer formed on the trailing edge of the tested bodies.

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USSR

UDC: 624.154.9

FILATOV, A. V. and ~~SHCHVETS, R. Ya.~~, Temirtau

"Using Pile-Columns in the Construction of the Karaganda Metallurgical Combine"

Moscow, Osnovaniya, fundamente i mekhanika gruntov, No 2, 1971, pp 35-36

Abstract: The authors study the problem associated with the efficiency of using short pile-columns under the columns of single-story industrial buildings. A summary of results is presented from field testing for imbedding and horizontal loads. Data on production experience are given for a series of construction objects of the Karaganda Metallurgical Combine along with data on the economic and technical comparison of various foundation designs. The results show that the use of short pile-columns nearly eliminates earth work, reduces concrete work by 30-50%, and decreases labor expenditure by 45-30%. The cost of foundation construction under these conditions is reduced by nearly 60%, while building time requirements are cut from 1.5 to 1.7 times. Original article: one table and two figures.

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USSR

UDC 551.242.5(470,46+574,1)

MIRCHINK, M. F., SHAKHNOVSKIY, I. M. and SHEBALDIN, V. P., Institute of Geography and Russian Hydrological Institute, Saratogan Petroleum Geophysics Board

"Origin of the Step on the Flank of the Precaspian Depression"

Moscow, Geologiya Nefti i Gaza, No 1, Jan 73, pp 9-14

Abstract: The step on the flank of the Pre-caspian depression is held to have been formed by a peculiarity of the deep-sea sediment accumulation of the down-warp. The fact that the rate of sediment accumulation lagged significantly behind the rate of subsidence is said to have caused the formation of the step. It is maintained that the accumulation of sediment was cyclical on the north-west flank of the depression, with periods of subsidence and accumulation alternating. High precision gravity measurements, seismic prospecting, the reflected wave method and new data from drilling do not agree with the linear dislocation model of step formation. The cyclical sedimentation model indicates that the inner portion of the depression, near the side is not likely to contain gas of petroleum. However the terrigenous deposits of the middle carboniferous stratum whose width increases sharply near the flank step, are considered more promising in this regard.

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USSR

UDC 541.62:547.819:543.422.4.6

ZAYTSEV, B. YE., SHEBAN, G. V., DYUMAYEV, K. M., and SMIRNOV, L. D.,
Scientific Research Institute of Organic Intermediates and Dyes. Moscow

"The Structure of 2-Methoxy-3-hydroxy-6-phenylazopyridine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 2, Feb 73, pp 224-229

Abstract: On the basis of IR and electron spectroscopy it was established that 2-methoxy-3-hydroxy-6-phenylazopyridine exists in azo and hydrazo forms. Switching from aprotic solvents to the protonated ones results in a shift in the equilibrium of tautomers toward the hydrazone form. The relationship of the tautomeric forms in different solvents was studied. The stability of both form was established by the MO method, the azo form appearing to be more stable.

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- 62 -

Forming

USSR

UDC 621.171.237

TRET'YAKOV, A. V., ZINOV'YEV, YE. G., ZUYEV, B. P., SHEBANITS, E. N., and
NALCHA, G. I., Scientific Research Institute of Heavy Machine Building of the
Urals Machine Building Plant and the Zhdanov Metallurgical Plant imeni Il'ich

"Increasing the Quality of Strip During Coiling Using an Electrohydraulic
System of Working Rolls Bending"

Moscow, Stal', No 7, Jul 73, pp 628-632

Abstract: The graphic relationship of corrected height of nonplaneness to the relative difference of elongation along the strip width, having a parabolic nature, was determined. It was established that strip and sheet dimensions affect the height of the wave forming the non-planeness. Effectiveness of the action of additional bending of the working rolls on the relative difference of elongations and strip non-planeness surpasses the effectiveness of the action of the pressure device (with the exception of narrow and thin strip). Hydroshaping of the working rolls promotes improvement of the mechanical properties of low-carbon steel during finishing owing to an insignificant change of the average relative reduction along the strip width in the limits of 0.8-1.4%. Adjustment of the hydroshaping system for the initial non-planeness of strip leads to producing heterogeneous mechanical properties along the width. Therefore, it is

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USSR

TRET'YAKOV, A. V., et al., Stal', No 7, Jul 73, pp 628-632

advantageous to equip continuous cold rolling mills with electrohydraulic systems of forced roll bending. Operation of the system of hydraulic shaping of the working rolls on a 1700 finishing mill made it possible to, along with a 1.5-3.0-fold reduction of rejection of cold-rolled sheet for roughness and waviness, substantially stabilize the mode of reductions and to increase the output of 1.5-2.0 mm thick sheet for very deep drawing by 10%. Six figures, two tables, six bibliographic references.

2/2

- 23 -

USSR

UDC 621.385.64

TRUBETSKOV, D. I., SHAREYEVSKIY, YU. P., SHEBCHIK, V. N.

"Theory of the Signal Suppression Effect in a Traveling-Wave Magnetron-Type Tube Amplifier in the Presence of Preliminary Modulation of the Electron Flux"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1007-1014

Abstract: A theoretical analysis is presented for the process of interaction of electrons and a wave in the traveling-wave magnetron-type tube amplifier with preliminary modulation of the electron flux. The conditions were obtained under which the effect of complete or partial suppression of the output wave is observed.

The basic equations are derived which permit analysis of the processes of interaction of the preliminary modulated electron flux with the wave and a traveling-wave magnetron-type amplifier. For defined relations between the input signal and the value characterizing the preliminary modulation the effect of complete or partial suppression of the output signal is observed which is explained by the effect that the modulated electron flux at the input of the interaction space falls in an unfavorable phase of the high-frequency field. The theoretically described mechanism of suppression of the signal in the traveling wave magnetron-type tube in the presence of flux modulation in the vicinity of the gun can lead to worsening of the output characteristics of the

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USSR

TRUBETSKOV, D. I., et al., Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1007-1014

amplifier; in particular, it can be the cause of the fact that in a number of cases the traveling wave magnetron type tube amplifier does not amplify weak signals and the stable amplification is observed from some defined value of the input signal.

2/2

- 100 -

USSR

UDC 518.12

ISMAGILOV, R. S., SHEBEKO, S. A.

"Obtaining Realizable Transfer Functions of Optimal Systems"

Tr. Mosk. in-ta elektron. mashinostr. (Transactions of the Moscow Institute of Electronics Machine Building), No 15, 1971, pp 129-136 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B988, by I Shelikhova)

Translation: For the case in which a useful signal is applied at a system input in the form of a polynomial of degree $r-1$ along with "white noise," conditions are determined that must satisfy the approximating e^{-pT} fractionally-rational Pade function in order that the resulting realizable optimal transfer function exactly satisfies the main quality factor of an optimal system with a finite observation time. It is shown that the approximation e^{-pT} by a Pade polynomial is the optimum, since it provides an exact value for the main quality factor of the system for the smallest power of the approximating polynomial.

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1/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--DEPENDENCE OF THE EFFECTIVENESS OF POLYETHYLENE GLYCOL ACTION ON
THE PBR OF A PHOTOGRAPHIC EMULSION -U-
AUTHOR--(03)-SHEBERSTOV, V.I., OVECHKINA, T.G., UCHUVATKINA, T.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOG. 1970, 15(1) 70-1

DATE PUBLISHED-----70

SUBJECT AREAS--METHODS AND EQUIPMENT, CHEMISTRY

TOPIC TAGS--PHOTOGRAPHIC EMULSION, PHOTOGRAPHIC CHEMISTRY, POLYETHYLENE,
GLYCOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1983/0308

STEP NO--UR/0077/70/015/001/0070/0071

CIRC ACCESSION NO--AP0053293

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0053293

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PBR OF A MODEL AMMONIACAL AG
IODOBROMIDE PHOTOGRAPHIC EMULSION (3 MOLE PERCENT AGI BASED ON TOTAL AG
HALIDE) CONTG. POLYETHYLENE GLYCOL (1) WAS MEASURED TO DET. THE
SENSITIZING EFFECTIVENESS OF I. IN EACH SERIES OF EXPTS. THE STARTING
EMULSION WAS DIVIDED INTO SEVERAL PORTIONS (SECONDARY EMULSIONS) BEFORE
THE 2ND RIPENING, AND THE PBR WAS DETD. IN EACH OF THEM BY ADDN. OF KBR
OR AGNO SUB3 SOLN. THE PH OF ALL THE SECONDARY EMULSIONS WAS APPROX.
THE SAME (6.15-6.45). THE SECONDARY EMULSIONS WERE SUBJECTED TO A 2ND
RIPENING UNTIL THE LIGHT SENSITIVITY REACHED A MAX. THE EFFECTIVENESS
OF I, COMPARED AT THE SAME RELATIVE DEGREE OF 2ND RIPENING, DECREASED
WITH INCREASING PBR. THE EFFECTIVENESS OF I ALSO DECREASED WITH
INCREASING DEGREE OF RIPENING. THUS, THE EFFECTIVENESS OF I UNDER
PRACTICAL CONDITIONS WAS SO SMALL THAT IT WILL LIKELY BE ELIMINATED WHEN
TECHNIQUES FOR PREPG. STABLE PHOTOGRAPHIC EMULSIONS WITH HIGH PBR (IS
GREATER THAN OR EQUAL TO 4.0) ARE DEVELOPED.

UNCLASSIFIED

1/2 013
TITLE--SOVIET PHOTOGRAPHIC SCIENCE -U- UNCLASSIFIED
AUTHOR--(02)-CHIBISOV, K.V., SHEBERTSOV, V.I. PROCESSING DATE--18SEP70
COUNTRY OF INFO--USSR
SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOGR, 1970, 15(2) 85-119
DATE PUBLISHED-----70
SUBJECT AREAS--METHODS AND EQUIPMENT
TOPIC TAGS--PHOTOGRAPHIC MATERIAL, RESEARCH AND DEVELOPMENT, PHOTOGRAPHIC EQUIPMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1983/1487
CIRC ACCESSION NO--AP0054343
STEP NO--UR/0077/70/015/002/0085/0119
UNCLASSIFIED

2/2 013
CIRC ACCESSION NO--AP0054343

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STATE OF THE ART REVIEW ON THE
THEORY AND PRACTICE OF PHOTOGRAPHIC MATERIALS PREPN. AND USE. 296 REFS.

89

UNCLASSIFIED

USSR

UDC: 681.84

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NAKHODKIN, N. G., KUVSHINSKIY, N. G., SHEVLYAKOV, YU. A., NEMISEV, V. P.,
NEDUZHIY, S. A., BORODKINA, M. S., USPENSKIY, V. I., ~~SHYBERSTOV, V. I.~~, Kiev
State University imeni T. G. Shevchenko and the All-Union Scientific Research
Institute of the Chemical and Photographic Industry

"A Photothermopolymerization Data Recording Method"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3,
1970, p 48, patent No 259961, filed 25 Jan 67

Abstract: This Author's Certificate introduces a photothermopolymerization data recording method based on the cross-linking response of polymers when they are exposed to radiation such as light. As a distinguishing feature of this method, the resolving power of the recording is improved and permanent recordings are made by converting the latent image to a three-dimensional relief with subsequent fixation through the process of heating the carrier material to its softening temperature and then cooling it.

USSR

VITKOV, M. G. and SHEBES, M. R.

UDS: 621.372.5

"Rational Synthesis of the Brune Cycle"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Transactions of the
Communication Education Institutes. Ministry of Communications,
USSR) 1970, No. 46, pp 225-228 (from RZh-radiotekhnika, No. 3,
March 71, Abstract No. 3A162)

Translation: The four-terminal Brune network is considered in the
form of a capacitance in combination with two inductively coupled
coils with a coupling coefficient of unity, loaded with a resist-
ance. An equation is derived for the determination of this re-
sistance. Two illustrations, bibliography of one. W. S.

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USSR

Measuring, testing, calibrating

UDC 621.384.6.01

BOGOMOLOV, A. S., ZAKUTOV, YE. M., and SHEBOLAYEV, I. V., Institute of Chemical Kinetics and Combustion, Siberian Department of the Academy of Sciences, USSR, Novosibirsk

"An Analyzer for the Energy and Phase Distribution of Electrons in a Beam"
Moscow, Pribery i Tekhnika Eksperimenta, No 3, May-June 1973, pp 27-30

Abstract: A description is given of the design and operation of an analyzer of the phase and energy current-density distributions of the particles in electron guns. The deflecting system consists of two identical cylindrical resonators, called a double resonator. The relative position of the cavities of the double resonator, and their common position with respect to the beam under investigation, is so chosen that at a specific phase shift among the oscillations in the cavities, the double resonator produces circular scanning of the beam on the plane of electron registration, for example on a fluorescent screen. A characteristic feature of the double resonator consists in the fact that two types of fields are used for deflection of the electrons -- a transverse magnetic field in relation to the beam, and an electrical one that is longitudinal with respect to the beam; this permits the conduct of precise measurements of electron distribution with respect to the energies in various phase sections of the

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USSR

BOGOMOLOV, A. S., et al., *Pribory i Tekhnika Eksperimenta*, No 3, May-June 1973,
pp 27-30

beam. The analyzer is applicable to electron beams with an energy from 10 to
3000 kev. 3 figures. 2 references.

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USSR

UDC 669.28.049-66:669.784

PAVLOV, YU. A., MESHCHERYAKOV, G. YA. and SHEBOLDAYEV, S. B., Moscow
Institute of Steel and Alloys

"Interaction of Molybdenum Trioxide With Graphite"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, No 1,
1972, pp 13-14

Abstract: The object of this study was the effect of the distance between molybdenum trioxide and graphite specimens, the direction and flow rate of inert gas current on the oxide's sublimation rate. The experiment involved specimens of analytically pure molybdenum trioxide, and MG-grade graphite, a quartz reaction vessel, and a resistance tube furnace. The testing temperatures were 400, 500, and 600°C and the reaction time -- 1/2 hr. It is shown that graphite, while adsorbing molybdenum trioxide vapors, reduces their partial pressure on the oxide and promotes sublimation. As the distance between the oxide and graphite specimens is increased, the sublimation rate decreases due to the drop in the concentration gradient of MoO_3 vapors from the oxide to the graphite. Here the concentration gradient acts as the motive force for the diffusion of oxide vapors. A decrease in the distance

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USSR

PAVLOV, YU. A., et al, Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, No 1, 1972, pp 13-14

between the specimens raises this gradient, facilitating the offtake of vaporized molybdenum trioxide from the specimens, thereby promoting the sublimation rate. Increasing the inert gas flow rate promotes the graphite effect, facilitating vapor offtake and promoting sublimation. (2 illustrations, 2 bibliographic references).

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UNCLASSIFIED
TITLE--PHYSICOCHEMICAL FEATURES OF THE REACTION OF TUNGSTEN TRIOXIDE WITH GRAPHITE -U-
AUTHOR--(05)--YELYUTIN, V.P., PAVLOV, YU.A., SHEBOLADEV, S.B., POLYAKOV,
V.P., MESHCHERYAKOV, G.YA.
COUNTRY OF INFO--USSR
PROCESSING DATE--23OCT70
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 73-5
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--TUNGSTEN COMPOUND, METAL OXIDE, GRAPHITE, CHEMICAL REACTION,
MOLYBDENUM OXIDE, THERMAL DIFFUSION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1085
CIRC ACCESSION NO--AT0119944
STEP NO--UR/0020/70/191/001/0073/0075
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119944

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MOO SUB3 AND WO SUB3 WERE HEATED UNDER VACUUM AT VARIOUS TEMPS. WITH GRAPHITE. A REACTION OCCURRED ON THE SURFACE OF THE GRAPHITE GIVING OXIDE LAYERS CONTG. MO SUB2 O SUB3 AND MO SUB4 O SUB11 (410-640DEGREES) AND W SUB18 O SUB49, W SUB20 O SUB58, AND W (750-1050DEGREES). THE COMPN. OF THE OXIDE LAYERS AND THE DISTRIBUTION OF W AND MO ON THE GRAPHITE SURFACE WERE DETD. THE THICKNESS OF THE OXIDE LAYERS WAS DETD. AT VARIOUS TEMPS. AND REACTION TIMES (1-12 HR). AT LOWER TEMP. THE FILMS WERE VERY THIN. AT 440DEGREES AND 510DEGREES, MOO SUB3 VAPORS WERE REDUCED TO MO SUB2 O SUB3. AT 640DEGREES THE RATE OF EVAPN. OF MOO SUB3 AND THE NO. OF PARTICLES ON THE GRAPHITE SHARPLY INCREASED. THE FORMATION OF A LAYER OF MO SUB2 O SUB3 HAMPERED FURTHER REDN. OF MOO SUB3 AND LED TO THE FORMATION OF MO SUB4 O SUB11, PROBABLY BY REACTION OF MO SUB2 O SUB3 WITH CO FORMED IN THE REACTION. AT HIGH TEMP. (1050DEGREES) MO SUB2 O SUB3 REACTED WITH GRAPHITE TO GIVE MOC. THE REACTION OF WO SUB3 WITH GRAPHITE GAVE A NONHOMOGENEOUS OXIDE LAYER CONTG. W METAL. AT 900-1050DEGREES A HEAVY LAYER OF W SUB20 O SUB58 FORMED. DIFFUSION PROCESSES PLAY AN IMPORTANT PART IN THESE REACTIONS. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 037 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MECHANISM OF THE REACTION OF MOLYBDENUM TRIOXIDE AND TUNGSTEN
TRIOXIDE WITH CARBON -U-
AUTHOR--(04)-PAVLOV, YU.A., SHEBOLDAYEV, S.B., MESHCHERYAKOV, G.YA.,
POLYAKOV, V.P.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 26-30
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CHEMICAL REACTION MECHANISM, GRAPHITE, TUNGSTEN TRIOXIDE,
MOLYBDENUM OXIDE, ELECTRON DIFFRACTION, PHASE COMPOSITION, METAL
REDUCTION, OXIDE FILM, CARBON MONOXIDE, PHYSICAL DIFFUSION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0807 STEP NO--UR/0148/70/013/004/0026/0030
CIRC ACCESSION NO--AT0132903
UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTION WAS STUDIED OF METALS WITH GRAPHITE UNDER THE CONDITIONS WHEN THE OXIDE IS BROUGHT IN CONTACT WITH THE REACTION SURFACE ONLY BY THE TRANSFER OF ITS VAPOR PHASE PARTICLES. THE OXIDE PELLETS (45 MM DIAM. AND 10 MM LENGTH) WERE PREPD. BY PRESSING WO SUB3 AND MOO SUB3 POWDERS; THESE WERE FURTHER CALCINED IN AN O STREAM FOR THE PURPOSE OF HOMOGENIZING THE COMPN. TABLETS MADE OF GRAPHITE AG 1500 WERE USED AS THE CARBONACEOUS REDUCER. FOR MOO SUB3, THE TEMP. RANGE INVESTIGATED WAS 380-750DEGREES, FOR WO SUB3 IT WAS 800-1050DEGREES. ELECTRON DIFFRACTION ANALY. SHOWED THAT THE DEPOSITED LAYER IS INDEED MOO SUB3. AT THE TESTING TEMP. OF 640DEGREES, THE FOLLOWING 2 PHASES FORM: MO SUB2 O SUB3 AND MO SUB4 O SUB11, WITH THE LAYER BOUNDING GRAPHITE CONSISTING ENTIRELY OF THE MO SUB2 O SUB3 PHASE. THE RESULTS INDICATE A REDN. MECHANISM, WITH COUNTER DIFFUSION OF THE O OF THE OXIDE AND THE C TAKING PLACE THROUGH THE LAYER OF THE REACTION PRODUCTS. SINCE MO SUB2 O SUB3 DOES NOT INTERACT WITH C UP TO 750DEGREES, THE SUBSEQUENT REDN. OF MOO SUB3 CAN BE BROUGHT ABOUT BY THE DIFFUSION OF C THROUGH THE MO SUB2 O SUB3 FILM. O OF THE OXIDE CAN ALSO DIFFUSE TO THE CONTACT SURFACE BETWEEN THE OXIDE PHASE AND THE GRAPHITE UNDER THE ACTION OF THE EMERGING CONCN. GRADIENT. THE REDN. PROCESS IS ACCOMPANIED BY AN INCREASE IN THE THICKNESS OF THE REACTION PRODUCT LAYER. IN CASE OF THE REON. OF WO SUB3, THE INFLUENCE MUST BE CONSIDERED OF CO WHICH FORMS BY THE REGENERATION REACTION, WHICH AT TEMPS. IN EXCESS OF 800DEGREES GOES ON AT A RAPID RATE.

FACILITY: MOSK. INST. STALI SPLAYOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--REACTION OF VANADIUM PENTOXIDE, MOLYBDENUM TRIOXIDE, AND TUNGSTEN
TRIOXIDE WITH CARBON AND CARBON MONOXIDE -U-
AUTHOR--YELYUTIN, V.P., PAVLOV, YU.A., POLYAKOV, V.P., SHEROLDAYEV, S.B.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 37-40
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--VANADIUM PENTOXIDE, MOLYBDENUM OXIDE, TUNGSTEN COMPOUND,
CARBON, CHEMICAL REDUCTION, METAL OXIDE, CARBON MONOXIDE, ISOTOPE
EXCHANGE, CHEMICAL REACTION MECHANISM
CONTROL MARKING--NO RESTRICTIONS.
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1981/0981 STEP NO--UR/0363/70/006/001/0037/0040
CIRC ACCESSION NO--AP0050973
UNCLASSIFIED

2/2 059 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0050937
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CERAMIC AND METALLIC COATINGS AFFECT THE DECREMENT OF OSCILLATIONS AND CORRESPONDINGLY THE HIGH TEMP. STRENGTH OF REFRACTORY ALLOYS SUBJECTED TO VIBRATION. TWO STEEL GRADES, AN AUSTENITIC AND A MEDIUM ALLOYED STEEL WITH A FERRITIC BASE, HAVE BEEN INVESTIGATED IN THE AS CAST STATE TO DET. THE DECREMENT OF OSCILLATIONS DURING FLEXURAL VIBRATION. SPECIMENS HAVE BEEN COATED WITH (1) A CERMET LAYER OF CR-NI-SI-B, (2) SILICATE ENAMEL, (3) ELECTROLESS NI. THE ENAMEL COATING GIVES A HIGHER DECREMENT COMPARED WITH AN UNCOATED SPECIMEN ONLY AT TEMPS. GREATER THAN 600DEGREES. IN THE OTHER 2 CASES THE SAME EFFECT APPEARS EARLIER AND IS MORE IMPORTANT; THE PRESENCE OF A NI COATING AT 550-600DEGREES GIVES A DECREMENT 1.5-2 TIMES HIGHER.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--0200170
TITLE--REMOVAL OF DUST FROM MERCURY CONTAINING GASES FROM TUBE FURNACES BY
DRY ELECTROSTATIC PRECIPITATORS -U-
AUTHOR--(04)--SHEBZUKHOV, D.A., DENISOV, V.F., KLEANDROV, I.N., GUDIN, B.S.
COUNTRY OF INFO--USSR
SOURCE--TSVET. METAL. 1970, 43(1), 35-9
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--INDUSTRIAL FURNACE, MERCURY, AIR POLLUTION, ELECTROSTATIC
PRECIPITATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0749 STEP NO--UR/0136/70/043/001/0035/0039
CIRC ACCESSION NO--AP0107291
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 011

CIRC ACCESSION NO--AP0107291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INPRINCIPLE POSSIBILITY OF EMPLOYING AN ELECTROSTATIC PRECIPITATOR FOR REMOVAL OF DUST FORM HG CONTG. GASES FROM TUBE FURNACES IS DEMONSTRATED. THE INSTALLATION OF ELECTROSTATIC PRECIPITATORS MAKES IT POSSIBLE TO REDUCE GREATLY THE VOL. OF REPROCESSED STUPP, AND TO INCREASE THE DIRECT EXTN. OF HG FROM IT. ELECTROSTATIC PRECIPITATORS ALSO HAVE A DEFINITE ECONOMIC ADVANTAGE.

UNCLASSIFIED

1/3 050 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--POST IRRADIATION CHANGES IN THE ELECTRICAL CONDUCTIVITY OF HEXOGEN
-U-
AUTHOR-(02)-SHECHKOV, G.T., MARASANOVA, G.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 465-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--ELECTRIC CONDUCTIVITY, HEXOGEN, PROTON, RADIATION EFFECT, X
RAY, THERMOGRAVIMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1392 STEP NO--UR/0080/70/043/002/0465/0467
CIRC ACCESSION NO--AP0116841
UNCLASSIFIED

2/3 050

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116841

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEXOGEN (C SUB3 H SUB6 N SUB6 O SUB6) WAS PRESSED INTO TABLETS AT 10 TONS-CM PRIME2 AND 80DEGREES. THE SAMPLES WERE SUBJECTED TO PROTON IRRADN. IN A 4.7-MEV CYCLOTRON OR EXPOSED TO X RAYS FROM A SOURCE AT E EQUALS 200 KV AND I EQUALS 20 MA. DOSES WERE SMALLER THAN OR EQUAL TO 9.8 TIMES 10 PRIME20 EV-G. THE ELEC. COND. OF HEXOGEN SAMPLES SUBJECTED TO PROTON IRRADN. WITHIN A DOSE OF (3.52-7.04) TIMES 10 PRIME18 EV-G INCREASED BY A FACTOR OF 25. FURTHER EXPOSURE TO PROTONS CAUSED A MONOTONIC INCREASE UP TO A DOSE OF 9.8 TIMES 10 PRIME20 EV-G. X RAY IRRADN., REGARDLESS OF DOSE, DID NOT ALTER THE ELEC. COND. OF HEXOGEN. THE ACTIVATION ENERGY OF ELEC. COND. INCREASED AFTER X RAY IRRADN., REGARDLESS OF DOSE, DID NOT ALTER THE ELEC. COND. OF HEXOGEN. THE ACTIVATION ENERGY OF ELEC. COND. INCREASED AFTER X RAY IRRADN., WHILE A REVERSE RELATION WAS OBSD. AFTER PROTON BOMBARDMENT. X RAY IRRADN. WITHIN THE INVESTIGATED DOSE DID NOT ALTER THE CHEM. COMPN. OF HEXOGEN, AND NO STRUCTURAL DEFECTS ARE INITIATED, AS PROVED BY DTA AND THERMOGRAVIMETRIC DATA. PROTONS CAUSED BOTH CHEM. DECOMPN. AND INITIATION OF STRUCTURAL DEFECTS. THE NEGLIGIBLE SP. ELEC. COND. OF HEXOGEN AT ROOM TEMP. (10 PRIME16-OHM CM), THE HIGH ACTIVATION ENERGY (1.85 EV), THE ABSENCE OF PHOTOCURRENTS BOTH PRIOR TO AND AFTER IRRADN., AND THE FACT THAT HEXOGEN CRYSTALS ARE MOL. LEAD TO THE CONCLUSION THAT CURRENT CARRIERS IN HEXOGEN ARE EITHER EXTRINSIC IONS OR CRYSTAL LATTICE DEFECTS. ELEC. COND. MEASUREMENTS ARE RECOMMENDED AS A SENSITIVE METHOD FOR THE DETN. OF PHYS. CHEM. CHANGES IN PROTON IRRADIATED HEXOGEN.

UNCLASSIFIED

3/3 050

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116841

*ABSTRACT/EXTRACT--THE NATURE OF CURRENT CARRIERS CAN BE DETD. AFTER
SIMULTANEOUS RADIATION YIELD AND ELEC. COND. MEASUREMENTS AT DIFFERENT
DOSES. FACILITY: TOMSK, POLITEKH. INST. IM. KIROVA. TOMSK,
USSR.

UNCLASSIFIED

USSR

UDC 621.372.851

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VALDNER, O. A., SOBENIN, N. P., ZVEREV, B. V., SHEDRIN, I. S.

"Experimental Graph for Calculating Iris Wave Guides"

Tr. Vses. soveshchaniya po uskoritelyam zaryazhen. chastits, 1968, T 2 (Works of the All-Union Conference on Charged Particle Accelerators, 1968, Vol 2), Moscow, VINITI Press, 1970, 179-183 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B136)

Translation: In connection with difficulties of exact calculation of the characteristics of circular iris wave guides -- phase and group velocities, damping coefficients, and so on -- work has been done to construct experimental graphs for calculating them as applied to real operating conditions in linear electron accelerators and in other analogous devices. Experimental data have been obtained for the 10-cm wave range, but representation of them in dimensionless form permits their use in any range. A procedure for using the graphs is demonstrated, and possible errors are estimated. There are five illustrations and a one-entry bibliography.

1/1

SHEFTAL, R.N.

TPKs 18308
6-73

XVI-3. STUDY OF THE FORM OF HETEROPOLYMERAL ISLETS IN DIFFERENT STAGES OF FILLING OF THE SUBSTRATE SURFACE

[Article by R. N. Sheftal, A. S. Larevsky, Moscow; Novosibirsk, Ill. State Univ. No. 17, 1972, p. 222]

For the theory of heterogeneous formation of nuclei it is necessary to know many experimental values which these theories support. It is most important to answer the question of the applicability of macroscopic thermodynamic concepts (free energy, surface tension) to the problems of nucleus formation.

For this purpose, in this paper an electron microscope study was made of the size and shape of the islets of bismuth as functions of their surface density; it was conducted in a vacuum by the methods of direct and random sampling of the material to the oriented and nonoriented substrates. The study of shape was made at different stages of growth of the films, beginning with the average thickness of 1A and ending with the channel growth stage.

The crystallization conditions varied within the limits with respect to temperature from 77° K to 383° K and with respect to condensation rate from 0.1A/sec to 10A/sec. The results obtained are discussed.

1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--RHEOENCEPHALOGRAPHY IN THE DIAGNOSIS OF BRAIN TUMORS -U-

AUTHOR-(04)-SHEFER, D.G., SKRYABIN, V.V., MYAKOTA, A.YE., SAKOVICH, V.P.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSKOVA, 1970,
VOL 70, NR 5, PP 680-684
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUMOR, BRAIN, HYPERTENSION, INTRACRANIAL PRESSURE, DIAGNOSTIC
MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0234

STEP NO--UR/0246/70/070/005/0680/0684

CIRC ACCESSION NO--AP0117486

UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0117486
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT. ON THE BASIS OF CLINICAL
OBSERVATIONS OF 116 CASES WITH BRAIN TUMORS THE AUTHORS DISCUSS
THE CHANGES OF REG DURING THE DIFFERENT STAGES OF THE HYPERTENSIVE
SYNDROME. THE RESULTS OF SUCH STUDIES PERMIT TO CONCLUDE THAT THERE IS
A CERTAIN CORRELATION BETWEEN THE CLINICAL STAGE OF INTRACRANIAL
HYPERTENSION AND THE AMPLITUDE FREQUENCY CHARACTERISTICS IN THE
REGISTERED CURVES. THE AUTHORS RECOMMENDED TO TAKE INTO CONSIDERATION
THIS FACT IN A CLINICAL INTERPRETATION OF THE REG DATA, INASMUCH, AS THE
FOCAL SYMPTOMS OF TUMORS MAY BE EXPRESSED ON THE BACKGROUND OF SUCH
CHANGES OF THE REG WHICH IS CONDITIONED BY AN INCREASE OF THE
INTRACRANIAL PRESSURE. FACILITY: KLINIKA NERVNYKH BOLEZNEY I
NEYROKHIRURGII SVERDLOVSK MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 547.234+547.241

PETROV, K. A., PARSHINA, V. A., SHEFER, G.

"Hydrazides of Phosphorus Acids"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1234-1236

Abstract: Hydrazine, N,N-dimethylhydrazine, phenylhydrazine, and acetylhydrazine react with the monochlorides of 2-chlorophenyl esters of phosphoric and phosphonic acids as well as their thio analogs. The reaction was run in benzene and at equimolar ratios of the reagents. The corresponding monohydrazide derivatives were formed. The nature of the hydrazine has no effect on the reaction rate. The products obtained are relatively stable compounds with a distinct amine odor, soluble in organic solvents, and insoluble in water. The IR spectra of the products obtained exhibit the absorption bands characteristic for the P=O, P-O-C, P-O-C, P-OC₆H₄Cl, C₆H₅, and P-N groups.

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USSR

UDC 611.81+616.831]-018.82-053.9

SHEFER, V. F., Leningrad Psychoneurological Institute imeni V. M. Bekhterev

"Size of the Bodies, Nuclei, and Nucleoli of Nerve Cells in Normal and Pathological Aging of the Brain"

Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, No 2, 1971, pp 42-48

Abstract: The length and width of the bodies, nuclei, and nuclei of nerve cells from different portions of the brain in mentally and physically elderly persons, in elderly persons suffering from cerebral atherosclerosis but mentally healthy, in elderly persons with senile psychoses, and in elderly persons suffering from dementia due to atherosclerosis were compared with the same parameters in mentally and physically healthy young persons (19 to 28 years of age). No significant differences were noted between the sizes of the cell bodies and nuclei in the aged and young regardless of the condition of the arteries at the base of the brain or presence or absence of dementia. However, the nucleoli in all four elderly groups were smaller (21%) than in the control. There was no relationship between the condition of the arteries and presence or absence of dementia. It was also found that the distribution of nerve cells

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USSR

UDC: 519.217

SHEFL, O. V.

"Optimum Control of a Linear Random System"

V sb. Nenlineyn. i optimal'n. sistemy (Nonlinear and Optimum Systems--collection of works), Moscow, "Nauka", 1971, pp 87-91 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V106)

Translation: This paper deals with the problem of optimum control of an object whose output signal is equal to the sum of interference and the integral convolution of the control signal and a given function. Control can be effected only by observation of some signal which is statistically related to the interference. The control problem is to minimize variance of the output signal. The existence of optimum control is proved, and its form is found. Author's abstract.

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1/2 025 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--BEHAVIOUR OF THE UPPER ATMOSPHERE EMISSIONS DURING HIGH METEORIC
ACTIVITY -U-
AUTHOR--SHEFUV, N.N. S
COUNTRY OF INFO--USSR
SOURCE--RAZDEL IV, POLYARNYYE SIYANIYA SVECHENIYE NOCHNOGO NEBA, 1970, NR
18, PP 21-25
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--UPPER ATMOSPHERE, METEOR, HYDROXYL RADICAL, OXYGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/0121

STEP NO--UR/3307/70/000/013/0021/0025

CIRC ACCESSION NO--AP0114517

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION N)--AP0114517

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTENSITY OF EMISSION OF OH, O
SUB2 AND NAI INCREASES ABOUT 1.5-2 TIMES IN THE PERIODS OF HIGH METEORIC
ACTIVITY AND THEN SUDDENLY DECREASES TWO OR THREE FOLD.

UNCLASSIFIED

89

1/2 023 UNCLASSIFIED PROCESSING DATE--02JCT70
TITLE--ABSOLUTE INTENSITIES OF THE AURORAL EMISSIONS IN ZVENIGOROD -U-
AUTHOR--(02)-SHEFOV, N.N., YURCHENKO, D.T. S
COUNTRY OF INFO--USSR
SOURCE--RAZDEL IV, POLYARNYYE SIYANIYA I SVECHENIYE NOCHNOGO NEBA, 1970,
NR 18, PP 50-96
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--AURORA, ATOMIC SPECTRUM, RADIATION INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1994/0114

STEP NO--UR/3307/70/000/018/0050/0096

CIRC ACCESSION NO--AP0114510

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0114510

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 42 AURORAE WERE OBSERVED VISUALLY AND SPECTROGRAPHICALLY IN THE PERIOD FROM 1957 TO 1966. THE PAPER GIVES THE DESCRIPTION OF VISUAL OBSERVATIONS AND INCLUDES TABLES OF ABSOLUTE INTENSITIES OF EMISSIONS IN THE REGION OF SPECTRUM FROM 3000 TO 11000 ANGSTROM. MOST OF THE OBSERVED AURORAE WERE TYPICAL LOW LATITUDE ONES HAVING ATOMIC SPECTRA AND PREDOMINANT EMISSION INTENSITY OF 6300 ANGSTROM.

UNCLASSIFIED

SHEFTAL, N.N.

SPAS 59208
6-73

IV-3. EFFECT OF THE ELECTRIC FIELD ON THE GROWTH RATE AND PERFECTION OF GALLIUM ARSENIDE FILMS

Article by N. N. Sheftal, N. N. Sheftal, Kh. A. Hagomedov, Institute of Crystallography of the USSR Academy of Sciences, Dagestan University, Novosibirsk, 211, Shipodunovo, Prokhorovskaya 1, Gruzia Polytechnic, Krasnodar, 1, Penol, Russia, 12-17 June, 1972, p 441.

In this paper a study was made of the effect of the constant electric field on the growth rate and the perfection of epitaxial films of gallium arsenide grown on the insulating substrates by the gas transport reaction method. The crystallization was carried out in a horizontal chamber adapted to study the effect of the electric field intensity on the film growth process. On the insulating substrates of quartz, fluorite and mica with orientation of (101), (111) and (100) respectively, p-type, highly pure GaAs was grown. The experimental procedure and the thermal conditions of the crystallization process were described.

A study was made of the field effect on the growth rate of the film in the 10-100 volt/cm range. An increase in the growth rate was detected which is proportional to the field intensity beginning with 40 volt/cm except with a negative potential on the substrate. For a film grown on a quartz substrate for example, growth rate with $E = 50$ volt/cm is 0.35 microns/minutes as opposed to 0.45 microns/minute for $E = 0$.

Results are presented from metal-x-ray and electron diffraction studies of films indicating worsening of the crystal lattice of the latter for fields above 50 volt/cm. The morphology of these films is distinguished by a dull surface and the appearance of growth configurations in contrast to the films deposited in the absence of a field and for fields to 30 volt/cm.

The explanation for the mechanism of the effect of the field on the growth rate and perfection of the gallium arsenide films is presented.

1/2 031, UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HARDENING NIOBIUM ALLOYS BY THE PRECIPITATION OF REFRACTORY OXIDES
-U-
AUTHOR--(03)--GRIGOROVICH, V.K., PRIDANTSEV, M.V., SHEFTEL, E.N.
COUNTRY OF INFO--USSR
SOURCE--FIZ. KHIM. OBRAB. MATER. 1970, (1), 103-7
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--METAL OXIDE, PLASTICITY, NIOBIUM ALLOY, ZIRCONIUM ALLOY,
HAFNIUM ALLOY, REFRACTORY METAL, METAL HEAT TREATMENT, MECHANICAL
PROPERTY, METAL AGING, OXIDE REFRACTORY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0630 STEP NO--UR/0472/70/000/001/0103/0107
CIRC ACCESSION NO--AP0105609
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0105609

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF AGING NB-ZR AND NB-HF ALLOYS CONTG. O WAS STUDIED TO FIND THE OPTIMUM HEAT TREATMENT PROCEDURES WHICH RESULT IN THE HIGHEST STRENGTH PROPERTIES. WITH AN INCREASE IN THE O CONTENT A HIGHER AGING TEMP. IS REQUIRED TO ACHIEVE THE HIGHEST STRENGTH PROPERTIES AND THE HARDENING EFFECT IS DECREASED OWING TO AGING. THE HARDENING PHASES IN THE RESP. ALLOYS ARE ZRO SUB2 AND HFO SUB2. A HEAT TREATMENT PROCEDURE IS PROPOSED WHICH PROVIDES FOR AN ENHANCED STRENGTH AND CONSERVES A SATISFACTORY PLASTICITY.

UNCLASSIFIED

USSR

SHEETEL' I. TEKSTER-PROSKURYAKOVA, G., LEYKINA, B.

"Posistors"

Moscow, Radio, No 3, March 1971, pp 55-56, 58

Abstract: The general characteristics of thermistors with positive temperature coefficients of resistance, called posistors, are discussed. The basic parameters of some Soviet-made posistors are presented and numerous possible applications of them are suggested. It is pointed out that the resistance of posistors depends not only on the temperature of the sample but also on the voltage applied to it. Means of controlling the temperature dependence of the resistance of the posistor by connecting posistors with line resistors or with thermistors with negative temperature coefficients of resistance are discussed. Static volt-ampere characteristics showing the dependence of the current passing through the posistor on the voltage applied to it under conditions of thermal equilibrium between the posistor and the environment are presented on a logarithmic scale. It is noted that these curves characterize the dependence of the posistor resistance on the power dissipated by it. It is pointed out that the numerous possibilities of using posistors are based

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USSR

SHEFTEL, I., et al., Radio, No 3, March 1971, pp 55-56, 58

on use of their temperature dependence of resistance and volt-ampere characteristics and that they can operate in DC or AC circuits up to 400 hertz. Use of posistors for thermal compensation in transistorized equipment is especially prospective, and the mechanism of their effectiveness here is described.

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1/2 038 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ELECTRICAL AND OPTICAL PROPERTIES OF STRONTIUM TITANATE
SEMICONDUCTOR SINGLE CRYSTALS -U-
AUTHOR--(05)-ROZHDESTVENSKAYA, M.V., SHEFTEL, I.T., STOGOVA, V.A.,
KOZYREVA, M.S., KRAYUKHINA, E.K. S
COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 873-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR SINGLE CRYSTAL, STRONTIUM COMPOUND, TITANATE,
SEMICONDUCTOR CONDUCTIVITY, TEMPERATURE DEPENDENCE, ELECTRON MOBILITY,
PHASE TRANSITION, HALL EFFECT, IMPURITY LEVEL, CERIUM, NIOBIUM,
PEROVSKITE, ABSORPTION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1994

STEP NO--UR/0181/70/012/003/0873/0878

CIRC ACCESSION NO--AP0105068

UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105068

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN OF THE MEASUREMENTS OF THE TEMP. DEPENDENCE OF ELEC. COND. (σ) AT 300-78 $^{\circ}$ K FOR SRTIO SUB3 CRYSTALS DOPED WITH VARIOUS AMTS. OF CE AND NB AND ALSO REDUCED IN H. FOR CRYSTALS DOPED WITH CE, THE TEMP. DEPENDENCE OF MOBILITY IS GIVEN. DECREASE IN σ WITH INCREASING TEMP. IS A RESULT OF DECREASED MOBILITY OF CHARGE CARRIERS. THE PRESENCE OF BREAKS IN THE TEMP. DEPENDENCE OF σ IS RELATED TO THE DISTORTION OF THE LATTICE OF SRTIO SUB3 ON COOLING AND TO THE PHASE TRANSITION AT 110 $^{\circ}$ K. MEASUREMENTS OF THE HALL EFFECT AT ROOM TEMP. SHOWED THAT THE HALL CONCN. OF CHARGE CARRIERS IN CRYSTALS WITH VARIOUS CONTENTS OF CE AND NB PRACTICALLY COINCIDES WITH THE IMPURITY CONCN. DETD. BY SPECTRAL ANAL. IT IS ASSUMED THAT CE PRIME3 POSITIVE REPLACES SR PRIME2 POSITIVE AND NB PRIME5 POSITIVE REPLACES TI PRIME4 POSITIVE IN THE PEROVSKITE LATTICE, THUS CREATING 1 FREE ELECTRON. FOR THIS SERIES OF CRYSTALS, ABSORPTION SPECTRA WERE INVESTIGATED. IN THE CASE OF DOPING WITH CE, THE ABSORPTION COEFF. DEPENDS ON THE CONTENT OF THE DOPING IMPURITY. AT THE ABSORPTION MAX. AT WAVELENGTHS OF 0.5 AND 1.2 μ , THE ABSORPTION COEFF. DEPENDS LINEARLY ON THE CONCN.

UNCLASSIFIED

USSR

UDC 621.383.032.217.3

VENEDIKTOV, N.YA., GALINSKIY, N.D., ~~SHEETEL~~ M.M.

"Study Of Porous Layers Of MgO As Emitters Based On Streaming For Preliminary Amplification Of Image Intensity"

Elektron.tekhnika. Nauch.-tekhn.sb. Elektronoluch. i fotoelektr.pribory
(Electronic Technology. Scientific-Technical Collection. Electron Beam And Photoelectric Devices), 1971, Issue 2(20), pp 40-47 (from RZh---Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A118)

Translation: The results are reported of a study of porous layers of MgO, operating at streaming [prostrel] in models of image intensity amplifiers. The stability of the coefficient of secondary emission and the effect of streaming of the film by fast electrons are studied. A.B.

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Acc. Nr:

AP0043795

SHEFTEL

S.I.

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 618-623

INELASTIC SCATTERING OF ELECTRONS BY NOBLE GAS ATOMS

Amus'ya, M. Ya.; Cherepkov, N. A.; Sheftel', S. I.

The differential cross section for inelastic scattering of keV electron by neon, argon, krypton and xenon atoms is studied for small energy losses. The calculation is carried out in the Born approximation and the wave functions of the Herman — Skillman potential are employed for the ejected electron. The dipole transition of the atomic electron yields the main contribution to the cross section; however, the shape of the curve significantly depends on the contribution of transitions of other multipole order. The results are compared with the experiments. Some peaks in the differential cross section for scattering by outer shells of argon, krypton and xenon atoms are explained. The discrepancy between the calculated and experimental values of the cross sections are analyzed.

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REEL/FRAME
19770204

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1/2 045 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--HYGIENIC PROPERTIES OF POLYMERS PROPOSED FOR WATER PIPE
CONSTRUCTION -U-
AUTHOR--SHEFTEL, V.O. S
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (2), 62-3
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MATERIALS, MECH., IND.,
CIVIL AND MARINE ENGR
TOPIC TAGS--TOXICITY, POLYMER, PIPE, WATER PIPELINE, POLYETHYLENE,
POLYVINYL CHLORIDE, POLYPROPYLENE, POLYISOBUTYLENE, POLYSTYRENE RESIN
EPOXY RESIN, REINFORCED PLASTIC, PHENOL FORMALDEHYDE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0797

STEP NO--UR/0191/70/000/002/0062/0063

CIRC ACCESSION NO--AP0119704

UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119704

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOXICITY OF POLYETHYLENE, POLY(VINYL CHLORIDE), POLYPROPYLENE, POLYISOBUTYLENE, POLYSTYRENE, GLASSFIBER REINFORCED PLASTICS, EPOXY RESINS, AND PHENOL,CH SUB2 O RESIN WATER PIPELINES WAS DISCUSSED WITH 31 REFS.

UNCLASSIFIED

Composite Materials

USSR

UDC 669.71'782'3

KOVAL', A. D., NATAPOV, YE. B., LEZHENKO, G. G., SEYN. V. I., SHEGAY, A. A.,
and SHMAKOV, A. M., Zaporozh'ye Machine Building Institute, Department of
Physical Metallurgy

"Molybdenum and Tungsten Fibers as a Strengtheners of a Heat-Resistant Composite"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya,
No 4, 1973, pp 153-155

Abstract: This work was conducted to study certain mechanical properties of wire, made at the Uzbek Refractory and Heat-Resistant Materials Combine (URHRMC), and the American alloy TZM, and to explain the possibilities of realizing the strength of molybdenum wire in a composite. Materials for this study were molybdenum and tungsten wires grades MCh and MK, made at URHRMC, experimental wire ChZM, and tungsten wire grade VA. A matrix of alloy EI435 was used with filler wire 0.5 mm in diameter. Volume content of wire in the alloy was 24%. Results of determining tensile strength showed that wire MCh had the lowest mechanical properties at 800-1200°C. Experimental alloy ChZM surpasses the short-time strength of molybdenum alloys TZM, MCh, MK and ChZM (not heat treated) after heat treatment. Tensile strength of EI435+30% MCh at 1100°C in the initial state and after annealing for 500 hours was 11-14 kg/mm². The
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USSR

KOVAL', A. D., et al., Izvestiya Vysshikh Uchebnykh Zabedeniy--Chernaya Metallurgiya, No 4, 1973, pp 153-155

following table shows the tensile strengths and short-time strengths of EI435 with different combinations of wire filler:

	TS(1100°C)	STS(1200°C)
EI435+30% MCh	13.6 kg/mm ²	---
EI435+24% VA	19	16.4 kg/mm ²
EI435+24% ChZM	22.2	17

Thus, the composite EI435+24% ChZM has the best properties above 1100°C and shows the best prospects as a filler wire reinforcing material. 2 figures, 1 table, 3 bibliographic references.

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- 4 -

USSR

UDC 539.562.669.27:62-426

BANAS, F. P., NATAPOVA, A. B., SHEGAY, A. A., and SUKHANOV, YU. V., Zaporozh'ya Machine-Building Institute Inst 7. L. Chubarya

"Tungsten Wire as a Reinforcement for Heat-Resistant Composite Materials"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1973, pp 45-46

Abstract: The strengths of VA, VT7, and VT15 alloys and of composite materials based on them were experimentally investigated. The results are presented in diagrams showing the temperature dependence of short-duration strength of tungsten wires and reinforced plates and the recrystallization of VT7 alloy wires. The wire of VA brand recrystallizes in the composite after 120-150 hr aging at 1100°C. In wires of VT7 alloy, a partial recrystallization takes place after 500-hr aging at 100°C. The 20-50 hr aging at 1200°C of the composite with tungsten reinforcement VA and VT7 results in complete collecting recrystallization in the wires. In wires of VA, VT7, and VT15 alloys, the process of collecting recrystallization begins at 1300°C after 6-7 hr aging. Two figures, two tables.

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USSR

UDC 636:612

KOVALENKO, Ya. R., SIDOROV, M. A., TATARINTSEV, N. T., FISHKO, I. O., and
SHEGIDEVICH, E. A., All Union Institute of Experimental Veterinary Science,
Moscow

"The Effect of Elevated Temperature and Humidity of the Environment on Immuno-
genesis of Swine Infected with Erysipelas"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 6, No 4, 1971, pp 591-596

Abstract: Two series of tests were carried out on swine of various weights. One group was kept in normal pigsty conditions at 15-20°C and relative humidity of 75-80%. The other group of similar swine were kept for three days prior to vaccination and for seven days thereafter in a climatic chamber, then transferred to the pigsty. Electric heaters, operating for eight hours daily, produced a temperature of up to 30-32°C, the air was circulated by ventilators, at a velocity of 0.15 m/sec, with a relative humidity of 75-80%. At night the temperature dropped to 22-25°C with humidity of 95-100%. Sixty-three piglets were used in two tests, vaccinated with live erysipelas vaccine strain V-2. It was demonstrated that in swine kept under conditions of elevated temperature and humidity, the synthesis of protein fractions undergoes a change, the

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USSR

KOVALENKO, Ya., R., et al, Sel'skokhozyaystvennaya Biologiya, Vol 6, No 4, 1971, pp 591-593

phagocytic activity of the blood neutrophils is markedly depressed, nucleic acid synthesis is altered, and the transformation of the blastie elements of lymph tissue into plasmatic ones is retarded. All of this affects the synthesis of specific antibodies. It was determined that elevated temperature and humidity, which produce significant hematological, cytological, and biochemical shifts in the body of swine, are factors which prevent the formation of intense postvaccinal immunity to erysipelas when live VZ-2 strain vaccine is used. The surrounding medium and microclimate can have a negative effect on the condition of the swine as stress factors, or be direct causes of disease. Therefore, when measures are being carried out for eradication of swine erysipelas, the effectiveness of vaccination of piglets kept under conditions of elevated temperature and humidity may decline markedly and many of the vaccinated animals fail to acquire any stable immunity.

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USSR

UDC: None

GRAYEVSKIY, A. N. and SHEGLOV, V. A.

"Propagation of Photodissociation Waves in Gases With Chemical Reactions Considered"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 59, No. 9, 1970, pp 845-856

Abstract: Photodissociation waves are defined as disturbances which can be propagated through a gas with ultrasonic speed. As a consequence of the elementary acts taking place in the gas, its molecules break up into single atoms of the nascent gas. The authors consider the propagation of the waves in the gas if a second gas, capable of chemical activity with the atoms of the first, is mixed with it. A typical example of such a mixture is a binary gas in which a chain reaction is possible. Approximate relationships are obtained for the velocity of the waves by considering a plane layer of the binary gas with a thickness equal to the wave length, on which a low-density current of quanta from a quasi-

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USSR

ORAYEVSKIY, A. N., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 59, No. 9, 1970, pp 845-856

monochromatic light is normally incident. The authors begin their analysis of the photodissociation waves with a system of a homogeneous equations for the transmission of the radiation and the kinetic equations. It is implicitly assumed, in the analysis, that the reaction between the gases progresses under isothermic conditions. The authors are connected with the Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR.

2/2

SHEGOLEV, G.M.

THERMO. PHYSICS

RESEARCH ON MATERIALS FOR THE MANUFACTURE OF OPEN-CYCLE MHD GENERATOR
ELECTRODES

(Article by G. V. Smasonov, V. M. Stepiaty, G. G. Gerasimov, V. S. Ikonnikov, A. A. Podchinnikova, M. K. Likhov (Institute of Problems of Hydrology, Academy of Sciences USSR), G. M. Shegolev (Institute of Hydrology, Institute of Thermophysics, Academy of Sciences USSR), E. P. Strashin, Institute of Electrodynamics, Academy of Sciences USSR), N. P. Strashin, Institute of Electrodynamics, Academy of Sciences USSR, Kiev, 393-409)

Annotation

Presented in this paper are the results of testing of gas-permeable blown electrodes under model MHD conditions. The tests revealed that the erosion resistance of protected materials is increased by a factor of 80 to 100 while the current density is 2-3 A/cm² (in the distributed discharge mode) and up to 20 A/cm² in the arc mode.

The interaction between air plasma containing compounds of alkali metals as additive, and the surface of electrodes, protected by blowing and made of nonporous polycrystalline silicon carbide, produced by tests of electrodes sintering method, are presented in this work. The physical properties which govern the operational performance of the electrodes are analyzed. It is established that long-term operation of the electrodes does not result in change of the phase composition and properties of polycrystalline silicon carbide. Erosion and chemical destruction occurs only on the surface of electrodes.

The composition of the film formed on the surface of a silicon carbide electrode during operation in contact with plasma containing potassium additive is analyzed. It is shown that the continuously forming silicate film substantially increases the emissivity of silicon carbide.

The electrode of an MHD generator should satisfy two main requirements: a) resistance to the aggressive action of the plasma jet for a long

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JPRS 61609
29 March 1974

SHEGOL'KOVA, L.A.

SPRS 59805

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1X-9. OBTAINING SINGLE SILICON CARBIDE CRYSTALS IN THE CUBIC VERSION (B-SIC) AND THE STUDY OF THEIR STRUCTURE

(article by L. B. Reifman, N. K. Prokof'yeva, V. G. Postn, L. A. Zhukova, L. A. Shegol'kova, Moscow; Novosibirsk, III Siberian Scientific Center, Krasnaya St. 1, Siberian Federal University, Krasnoyarsk, Russian, 12-17 June 1972, p. 125)

A study was made of the possibility of obtaining single B-silicon carbide crystals by thermal reduction of the vapor-gas mixture using methyl trichlorosilane-toluene (ratio C:H > 1).

By using the C^{14} radioisotope, the participation of an additional carbon-containing compound introduced into the vapor-gas mixture in the reaction of formation of the B-silicon carbide was demonstrated.

The optimal conditions for growth of p-type single crystals with diameters of the mirror surface reaching 4×5 mm in individual cases were determined. On the basis of the grown crystals, the point-contact and diffuse light diodes and also barrier-layer photoelements were manufactured.

X-ray diffraction and electron diffraction studies were used to demonstrate the theoretical possibility of obtaining perfect crystals by the indicated method.

Heat, Combustion, Detonation

USSR

UDC:533.601.1.536.46

YERSHIN, Sh. A., PAK, V.V., SHEGUROV, A. A.

"Experimental Study of Aerodynamics of a Diffusion Flame with Supersonic Gas Flow"

Probl. Teploenerg. i Prikl. Teplofiz. [Problems of Thermal Power Engineering and Applied Heat Physics -- Collection of Works], No 9, Alma-Ata, Nauka Press, 1973, pp 112-120 (Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 11, 1973, Abstract No 11.34.41, from the resume)

Translation: The case is studied of axisymmetrical movement of a supersonic stream and flame in a flooded space. Experimental data are presented for various cross sections from the cross section of the nozzle and for two flow modes: $M=1.05$, $T_0=930^\circ \text{ K}$, $n=0.94$, and $M=1.25$, $T_0=950^\circ \text{ K}$, $n=0.92$.

The calculation of the supersonic diffusion flame is constructed on the basis of the method of the equivalent problem of the theory of heat conductivity, and the agreement with experimental data is satisfactory.
4 Figures; 9 Biblio. Refs.

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USSR

UDC 534.26

SHEGUROVA, G. I., State Pedagogical Institute imeni V. I. Lenin, Moscow
"Radiation of Sound Waves by Elongated Streamlined Bodies Moving Past a
Half-Plane"

Moscow, Akusticheskiy Zhurnal, No 2, Apr/May/Jun 71, pp 284-289

Abstract: The problem of the diffraction of an acoustic field generated by a streamlined body of rotation moving in a homogeneous medium on a semi-infinite, absolutely rigid screen is considered. The small perturbations arising in the gas are described by a system of hydrodynamic equations and characterized with the aid of small deviations in the velocity, mass density, and pressure on the corresponding equilibrium values. The unperturbed gas is considered at rest, and viscosity and heat conductivity of the medium are not taken into account. The streamlined body is smoothly tapered at the rear; it was determined that it should be rounded for subsonic motion and tapered with a low angle of taper for supersonic motion. Under these conditions the gas flow retains potentiality which is not disturbed by low-intensity shock waves accompanying supersonic motion. The Wiener-Hopf method was used in finding the diffraction radiation. It is shown that acoustic radiation arising in the motion of a thin body along a plane screen is of a purely diffraction

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USSR

SHEGUROVA, G. I., Akusticheskiy Zhurnal, No 2, Apr/May/Jun 71, pp 284-289

nature for subsonic velocities, and for supersonic velocities the problem can be reduced to a problem of the diffraction of plane acoustic waves. The solution given does not take into account secondary diffraction of the field from the surface of the moving body, is below a given length, the diffraction field in this case not being able to go beyond the moving body. It is noted that for supersonic velocities the diffraction field represents the superposition of spherical waves, the reaction of which on the moving body can be neglected.

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Abstracting Service:
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5/70 2R0065

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91898z Udmurt petroleums. Vol'ison, I. S.; Teleshova, M.
N.; Sheikh-Ali, G. A. (USSR). *Khim. Tekhnol. Topl. Masel*
1970, 15(2), 8-8 (Russ.). The following properties of the title
petroleum are reported: density, mol. wt., viscosity at 20°, and
at 50°, congelation, H₂SO₄ tar, paraffin, silica gel resins, asphal-
tenes, coke, fraction b. ≤200° and ≤300°, acidity, and C₁-
hydrocarbons.
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USSR

UDC 621.372.8.092.22

SHEIN, A. G., KRASOVSKIY, G. YA.

"Theory of Resonator Three-Dimensional-Periodic Delay Systems"

Radiotekhnika. Resp. mezhd. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 73-77 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B122)

Translation: The characteristics of delay systems are investigated. The dispersion equations and formulas for the coupling resistances are obtained. There are 4 illustrations and an 8-entry bibliography.

USSR

UDC 621.372.5

SHEIN, A. G., STAROSTENKO, V. V.

"Study of Coupled Transmission Lines with Identical Phase Propagation Constants and Different Damping Constants"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 111-114 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A149)

Translation: The method of associated waves is used to study coupled transmission lines with identical phase propagation constants and different damping constants. Analysis shows that for certain values of the line parameters, complete transfer of power from one line to the other is possible. The experimental results can be useful when analyzing processes occurring in traveling wave tubes, backward wave tubes, directional couplers, coupled spirals, and so on. There are 2 illustrations and a 5-entry bibliography.

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USSR

UDC 621.372.8.092.22

SHEIN, A. G., KATALEVSKIY, V. M.

"Calculating the Characteristics of Opposing Rod Delay Systems by the Electrodynamic Method"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 77-82 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B123)

Translation: The dispersion equation of a delay system is obtained; the dispersion characteristic is constructed. There are 5 illustrations and a 5-entry bibliography.

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USSR

UDC 621.372.853.1

SHEIN, A. G., SHAVORYKIN, Yu. V.

"Utilization of the Brillouin Concept for Calculating the Parameters of Dielectric Inhomogeneities in the Wave Guide"

Tr. 1-y Yubileyn. resp. mezhvyyzovsk. konferentsii po probl. povysheniya effektivn. elektrovakuumn. priborov, Vyp. 2 (Works of the First Jubilee Republic Interuniversity Conference on Problems of Improving Efficient Electrovacuum Instruments. Vyp. 2), Kiev, 1970, pp 148-160 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B138)

Translation: This article contains an investigation of the joining of two wave guides of identical cross section containing dielectrics with different values of the dielectric constant and also the case of a wave guide containing an arbitrary number of dielectric layers the interfaces of which are perpendicular to the longitudinal axis of the wave guide. The results obtained can be used to determine the reflection coefficient and the conditions of absence of reflections from double windows, step discs, step windows and other analogous inhomogeneities. There are two illustrations and a nine-entry bibliography.

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USSR

UDC 681.3

PUCHIN'YAN, V. K., SHEIN, P. D., SHTEYN, M. Ye.

"Problem of Optimal Division of a Graph and Arrangement of Digital Computer Devices"

Sistemy Raspredeleniya Resursov na Grafakh [Systems for Distribution of Resources on Graphs -- Collection of Works], Moscow, Acad. Sci. USSR Computer Center, 1970, pp 118-126, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V574 by O. Belkin).

Translation: One problem of modular planning of digital computers is studied. A circuit is to be represented, fixed on a structural level by a set of modules of the next level so that the number of connections between the modules is minimal. The plan of the device is fixed by an equivalent graph, the points of which correspond to modules in the initial circuit. The lines of the graph are identified with the connections between modules. Further, the problem of division of the system is reduced to the problem of division of its equivalent graph. The algorithm for division consists of organization of an ordered selection of all possible sets of line numbers, i.e. all possible divisions, satisfying certain conditions. The division satisfying these conditions is considered optimal. The algorithm suggested was programmed on the M-220 digital computer. The time of solution of the problem remains within permissible limits with 20-30 points on the graph.

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UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--FORMATION OF ANION RADICALS IN NUCLEOPHILIC AROMATIC SUBSTITUTION REACTIONS -U-

AUTHOR--(05)-SHEIN, S.M., BRYUKHOVETSKAYA, L.V., PISHCHUGIN, F.V.,
STARICHENKO, V.F., PANFILOV, V.N.

COUNTRY OF INFO--USSR

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DATE PUBLISHED-----70

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2/2 015

CIRC ACCESSION NO--AP0140796

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PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE TYPICAL REACTION OF NUCLEOPHILIC SUBSTITUTION WITH A NO. OF AROMATIC NITRO DERIVS. I (R EQUALS NO SUB2, R PRIME1 EQUALS H), R PRIME2 EQUALS F, CL, BR, NO SUB2, OME, SME, SCF SUB3, SO SUB2 ME; I (R EQUALS CL, R PRIME1 EQUALS NO SUB2), AND I (R EQUALS OME, R PRIME1 EQUALS NO SUB2). R PRIME2 EQUALS NO SUB2, CF SUB3, SO SUB2 ME, SO SUB2 CF SUB3, RESP., THE FORMATION OF ANION RADICALS WAS OBSD. (EPR). THE TRANSEETHERIFICATION REACTION OF ALKYL ETHERS OF MONO AND POLYNITROPHENOLS IS ASSOC'D. WITH THE FORMATION OF ANION RADICALS FROM THESE COMPS. THAT REMAIN IN EQUIL. WITH STARTING PRODUCTS AND SIGMA COMPLEXES. SIMILARLY ANION RADICALS WERE OBSD. DURING THE REPLACEMENT OF HALOGEN OR NITRO SUBSTITUENTS. UNDER THESE CONDITIONS NITRO COMPS. I (R EQUALS OME OR CL) FAIL TO PRODUCE ANION RADICALS IN DETECTABLE CONCNS. FACILITY: INST. ORG. KHM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

GONOR, A. L., KAZAKOV, M. N., SHVETS, A. I., SHEIN, V. I., Moscow

"Aerodynamic Characteristics of Star-Shaped Bodies at Supersonic Velocities"
Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 97-102

Abstract: Some results of an experimental analysis of the aggregate aerodynamic characteristics of star-shaped bodies at supersonic velocities and a study of the flow pattern in the wake behind a star-shaped body in a broad range of Mach numbers from 2.5 to 8.0 and with variation of the angle of attack from 0 to $\pm 8^\circ$ are presented. The aerodynamic characteristics of two models of star-shaped bodies with from 4 to 6 points were obtained during the study. A comparison was made with the characteristics of the equivalent cone and the characteristics of a "star" with 10 points. A calculation of the drag and position of the compression shocks was made for comparison with the experimental data.

An optical study of the streamlining spectrum is presented with Schlieren photographs and graphs showing the geometry of the Mach configuration as a

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